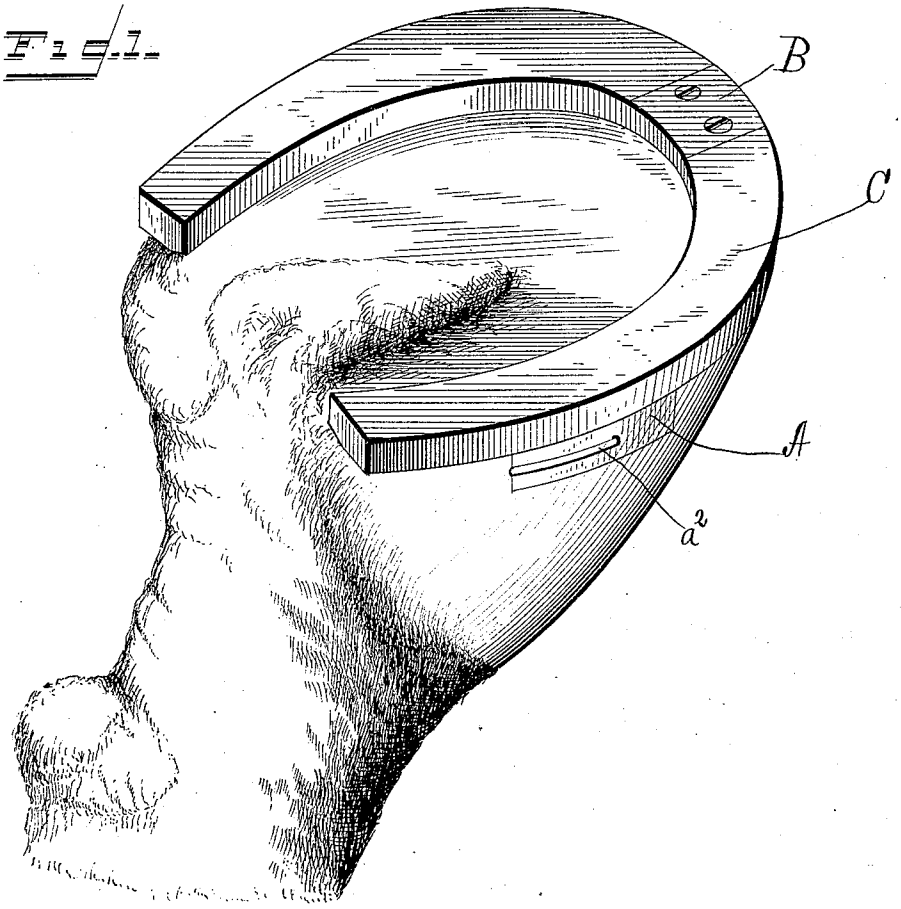
(No Model.) 3 Sheets—Sheet 1.

C. W. HAYES.

HORSESHOE.

No. 340,440. Patented Apr. 20, 1886.

Fig. 1.



WITNESSES

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

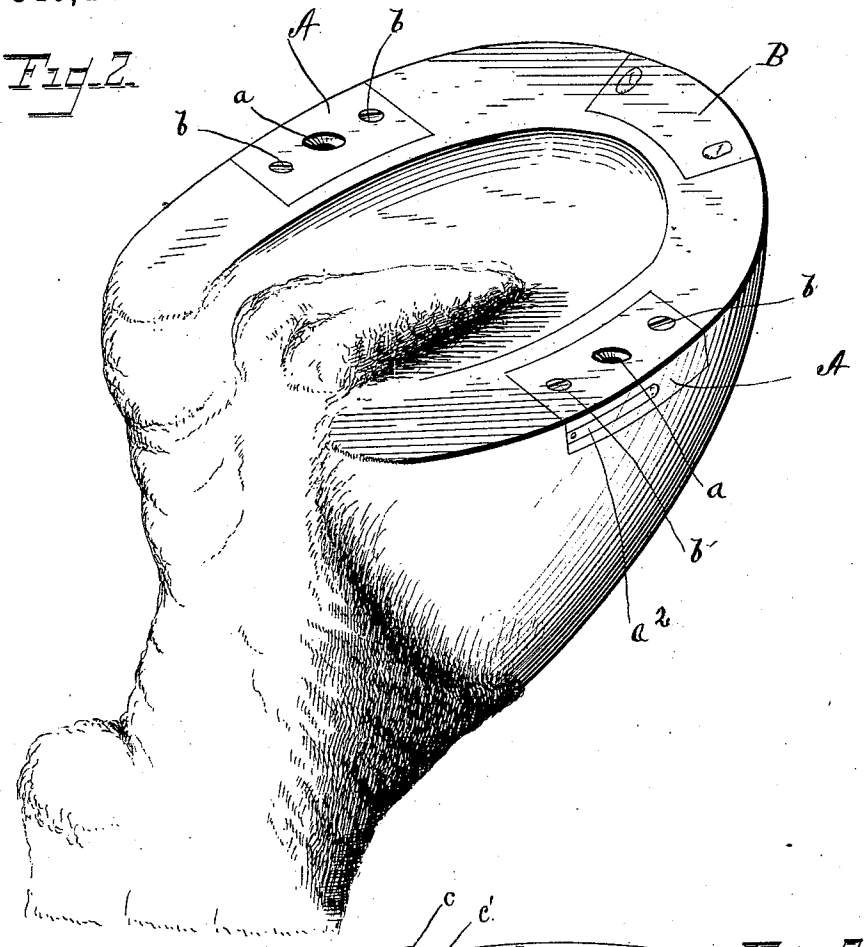
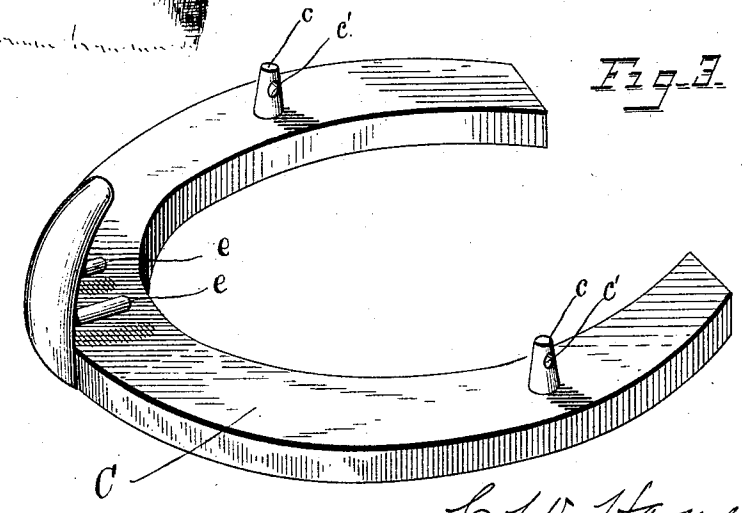


Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 4.

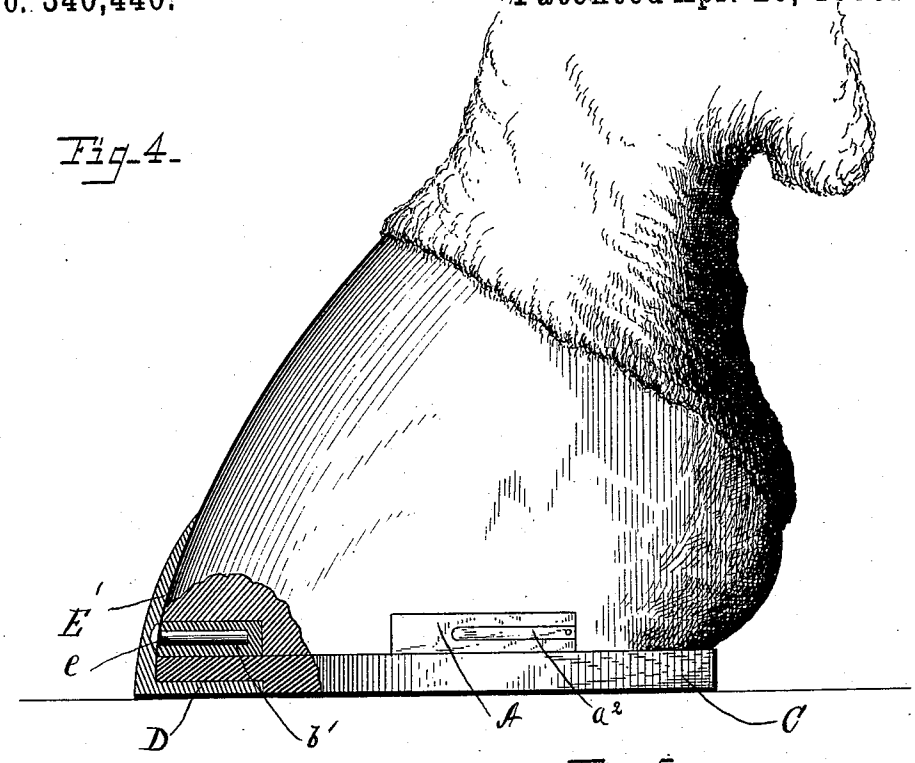


Fig. 8.

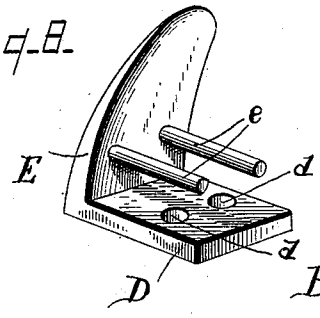


Fig. 5.

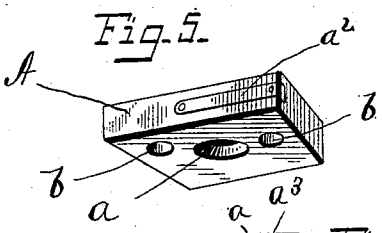


Fig. 6.

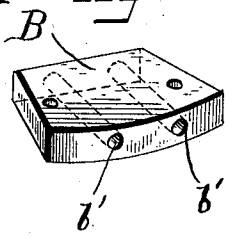
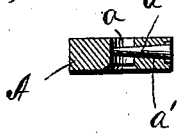


Fig. 7.



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UNITED STATES PATENT OFFICE.

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HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 340,440, dated April 20, 1886.

Application filed February 12, 1886. Serial No. 191,702. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HAYES, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Horseshoes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has reference to horseshoes; and it consists in the improvements and features of construction hereinafter described and set forth.

The object of the invention is more particularly to provide a shoe and devices for connecting the same to the hoof, that the shoe may be quickly and firmly secured in position on the hoof without the use of nails or other permanent fastenings, the said shoe being adapted to be as quickly removed when desired.

Numerous objections are incident to the prevailing manner of shoeing, and for many purposes the common form of shoe is unsatisfactory. Among such objections and disadvantages may be noted the fact that the shoes are secured permanently to the foot for an extended period, and are generally not removed and renewed until they are considerably worn away. Then, again, a large number of nails are used, from which considerable danger ensues from being driven carelessly into the tender parts of the foot, and when such shoes are removed they are generally taken off so as to withdraw the nails at the same time. Before, however, the shoe and nails can be so removed it is necessary for the smith to straighten the clinched ends of the nails, after which operation the nails are mostly irregular to some slight degree, which causes them to tear or enlarge their openings when withdrawn. As a consequence, the nail-openings in the wall or crust of the hoof become so numerous and large that it is impossible to secure a firm bearing for the nails of the succeeding shoe.

The wear of the shoes of many horses is occasioned, for the most part, by their stamping or pawing in their stalls, rather than from actual service. Further, the permanently-attached shoes subject the foot, when the horse is stalled, to the same unresisting and rigid strain experienced during working-hours, and consequently no provision is made for allowing the hoof a healthy expansion and rest when the horse is not in service.

By my invention all of the foregoing objections and disadvantages are obviated, while an effective shoe is provided at but a slight, if any, increase in the expense of the shoe.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of an inverted hoof having my improved shoe applied thereto; Fig. 2, a like view showing the shoe removed, and illustrating the arrangement of the fastening-plates. Fig. 3 is a perspective view of the upper side of the shoe. Fig. 4 is a side elevation, partly in section, of a hoof with the improved shoe. Figs. 5 and 6 are perspective views of the side and toe plates. Fig. 7 is a transverse section of Fig. 5, and Fig. 8 is a perspective view illustrating the construction of the toe-clamps.

In order to convey a clear understanding of the invention, the description will be first confined to the construction and arrangement of the fastening-plates, and then with respect to the shoe proper.

The under face of the wall or crust of the hoof at the point known as the "quarters" is provided with a recess at each side, each of which recesses is of such depth and shape as to adapt it to snugly receive and contain one of the plates A, which, as seen in Fig. 2, contracts toward the center of the foot. Each of the said plates A is provided with a central opening, *a*, which is countersunk on the bottom face of said plate. At either side of the opening *a* are arranged holes *b b*, through which nails are driven to firmly secure the plate to the wall or crust. On the outer edge face of each plate A, and extending from one end to slightly beyond the center of such edge, is a longitudinal depression, the inner end of which is intersected by a conical opening, *a'*, which also communicates with the opening *a*. Within the said depression is located a spring, a^2, which is secured at its outer end by a rivet, while its inner end carries a conical pin, a^3, which plays through the opening *a'*, and transversely across the opening *a*.

B refers to a plate, which is to be located at the toe of the hoof, and is secured thereat in a recess therein by nails, substantially the same as the plates A. The plate B, however, in ad-

dition to its nail-holes, is provided with two horizontal openings, *b' b'*, as shown most clearly in Figs. 4 and 6.

The shoe C, which may be of any preferred form, is provided at each side at the point which registers with the plates A A with an upwardly-projecting lug, *c*, Fig. 3, which lug is of conical form and adapted to enter the opening *a* in the plate A. Each lug *c* has an opening, *c'*, passing horizontally through the same.

The shoe C is recessed on its under side at the toe, for the reception of the horizontal portion or base D of a toe-clamp, E, Figs. 4 and 8, the said base D being provided with two openings, *d d*, through which pass screws to secure the clamp E rigidly to the shoe. It will be noted by reference to Fig. 1 that the base D is flush with the under face of the shoe Extending rearwardly from the curved portion E' of the toe-clamp are two horizontal pins, *e e*.

In practice the toe-clamp E is secured to the shoe, as before explained, and the shoe manipulated so that the pins *e e* enter the openings *b' b'* to permit the curved part E' to bear firmly against the front or toe portion of the hoof. The shoe is then forced up against the bearing on the under side of the wall or crust, thereby causing the lugs *c* to enter the openings *b' b'* in the plates A, the conical form of said lugs resulting in pushing aside the pins a^3 until the openings in said lugs come opposite the openings *a'* in the plates, when the springs a^2 project the pins a^3 through the openings in the lugs and lock the latter, with the shoe, firmly to the hoof.

It will be noted that the length of the pins *e e* is relatively much greater than that of the other pins and parts; but this is amply provided for from the fact that the wall or crust of the hoof is greatest both in thickness and in height at the toe of the hoof, consequently a greater bearing is afforded for the fastening devices at such point, which is the place where the greatest strain is received. Moreover, the strain or tension on the shoe is received by the latter in substantially a horizontal direction, thus serving, in my arrangement, to more effectively hold the plate and shoe together, which would not be the case if the power or force were in vertical direction. In the latter event the effect would be to tear or rend the shoe from the plates A A and B.

When it is desired to remove the shoe, it will only be necessary to insert some pointed instrument or piece of metal under the springs a^2, so as to lift or move their free ends out of their recesses, causing the pins a^3 to be withdrawn from the lugs, and then finally disengaging the toe-clamps from the plate B.

As the natural tendency of the wall or crust is to grow laterally, it will only be necessary to occasionally rasp the outer face of the crust in order to preserve the outer edge of the plates flush with said crust.

Some of the advantages incident to my invention may be noted as follows: The foot can be permitted to expand whenever desirable. The shoes can be quickly applied and removed. They can be interchanged whenever necessary, so as to substitute rough shoes, suitable for bad weather, or a light or heavy shoe, and by the occasional removal of the shoes accumulations of foreign matter between the shoe and hoof will be guarded against.

I do not limit myself to the precise construction of fastening devices described, as the same may be subject to modification and change without departing from the spirit of my invention.

I claim—

1. The combination, with a horseshoe provided with projections, of plates adapted to be secured to the under side of the foot to engage said projections, substantially as set forth.

2. The combination, with a horseshoe provided with projections, as described, of plates adapted to be secured to the under side of the foot, openings in said plates to engage said projections, and a locking device for securing said projections in said plates, substantially as set forth.

3. The combination, with a horseshoe provided with projections having perforations, as described, of plates adapted to be secured to the under side of the foot to engage said projections, and a spring, a^2, and pin a^3, substantially as set forth.

4. The combination, with the plates A A B, of a shoe provided at its front with pins to engage said plate B, and at its under sides or quarters with projections to engage the plates A A, substantially as set forth.

5. The combination, with plate C, having horizontal openings, of a shoe carrying a removable-clamp, pins *e e* on said clamp, and plates A A, and devices for locking said shoe to said plates, substantially as set forth.

6. The combination, with a shoe having clamps and projections *e e*, as described, of a series of plates, A A B, adapted to be secured to the under side of the hoof, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES W. HAYES.

Witnesses:
WILLIAM CAXTON,
BEVERLY KING.